

REMARKS/ARGUMENTS

Claim Amendments

The Applicant has not amended any claims. Applicant respectfully submits no new matter has been added. Accordingly, claims 1-18 are pending in the application. Favorable reconsideration of the application is respectfully requested in view of the foregoing amendments and the following remarks.

Examiner Objections - Claims

Claims 4-10 and 14-20 were objected to because of informalities. In response, the Applicant respectfully disagrees. The Applicant filed a preliminary amendment on April 27, 2008 amending claims 4-10 and 14-20 to remove any reference to multiple claim dependency. The withdrawal of the objection and the examination of claims 4-10 and 14-20 are respectfully requested.

Claim Rejections – 35 U.S.C. § 112

Claim 1 stands rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter as the invention. The Examiner stated that claim 1 recites the limitation “said second weighing factors provided in step c)” in lines 25-26. The Examiner further stated that there is insufficient antecedent basis for this limitation. In response, the Applicant respectfully disagrees. This limitation actually reads “said first radio signal provided in step c) weighed by said second weighing factors...” Antecedent basis is provided for “said first radio signal” in step c). Antecedent basis is provided for “said second weighing factors” in step d). Therefore, the withdrawal of the rejection and allowance of claim 1 is respectfully requested.

Claim Rejections – 35 U.S.C. § 103 (a)

Claims 1-3 and 11-13 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over Kao (US PG PUB NO 2004/0077377) in view of Mesecher et al (US

Patent No. 6,937,879). The Applicant respectfully traverses the Examiner's rejections and submits the following remarks for the Examiner's favorable reconsideration.

To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all of the claim limitations (MPEP 2143). In that regard, the Applicant respectfully submits that the Examiner's two references still fail to teach or suggest each and every element of the presently pending independent claims.

Claim 1 recites:

1. A method of interference cancellation in radio communication signals received by a radio access unit of a radio communication system, said radio access unit comprising receiver means and antenna means, said antenna means having a plurality of directionally separated antenna elements for adaptively receiving radio communication signals transmitted by a plurality of remote radio communication units, said method comprising the steps of:

- a) obtaining radio signals received by each of said antenna elements;
- b) determining first weighing factors for optimally selecting radio signals of a first radio communication unit among said radio signals obtained in step a) ;
- c) weighing said radio signals obtained in step a) by said first weighing factors providing a first radio signal of said first radio communication unit;
- d) determining second weighing factors for optimally selecting radio signals of a second radio communication unit among said radio signals obtained in step a) ;
- e) weighing said radio signals obtained in step a) by said second weighing factors providing a second radio signal of said second radio communication unit ;
- f) subtracting from said second radio signal provided in step e) said first radio signal provided in step c) weighed by said second weighing factors, providing a corrected second radio signal, and

g) repeating steps d) to f) for a further radio communication unit by determining further weighing factors, providing a further radio signal of said further radio communication unit and providing a corrected further radio signal by each time subtracting from said further radio signal said previously obtained corrected radio signals weighed by said further weighing factors, till a stop criterion has been satisfied. (emphasis added)

The present invention discloses and claims a method of interference cancellation in radio communication signals received by a radio access unit of a radio communication system. The present invention receives radio signals from a plurality of directionally separated antenna elements. A first radio signal is obtained by weighing the signals by first weighing factors. A second radio signal is obtained by weighing the signals by second weighing factors. The first radio signal is then subtracted from the second radio signal to obtain a corrected second radio signal. This process is iteratively conducted for each received signal, one signal at a time.

The Examiner stated that Mesecher discloses subtracting from the second radio signal the first radio signal, providing a corrected second radio signal. The Applicant respectfully disagrees. Mesecher discloses the utilization of a main antenna and a narrow beam direction antenna. Signals are received by both the main antenna and the narrow beam direction antenna. The signals received by the narrow beam direction antenna are weighed and subtracted from the signals received from the main antenna. However, the signals received by the narrow beam direction antenna are from a fixed interferer and not from a subscriber (i.e., radio communication unit). Mesecher merely subtracts the interference generated from the fixed interferer, which is not a signal received from a radio communication unit (see Col. 8, lines 21-36: "The interference cancellation method involves directing the narrow beam directional antenna 145 towards a fixed interferer (not shown) as in the previous embodiments, weighing the signal received by the narrow beam direction antenna and subtracting it from the signal..."; and Col. 4, lines 1-4: "The auxiliary antenna 39 architecture is highly focused and directional such that the only large signal received by the auxiliary antenna 39 is the signal from the interferer 47 and not the signals from the subscriber units 25."

Therefore, Mesecher does not teach or suggest the step of subtracting from the second radio signal (received from a second communication unit by an antenna element) the first radio signal (received from a first communication unit) weighed by the second weighing factors, providing a corrected second radio signal. Mesecher merely discloses subtracting a fixed interferer and not a radio communication unit from the other signal.

Furthermore, neither Kao nor Mesecher teach or suggests performing the iterative steps of the recited method for each received signal, one signal at a time. Kao and Mesecher do not teach or suggest receiving a plurality of signals, and for each received signal, correcting the signal iteratively.

Therefore, the Applicant respectfully submits that the steps of: f) subtracting from said second radio signal provided in step e) said first radio signal provided in step c) weighed by said second weighing factors, providing a corrected second radio signal; and g) repeating steps d) to f) for a further radio communication unit by determining further weighing factors, providing a further radio signal of said further radio communication unit and providing a corrected further radio signal by each time subtracting from said further radio signal said previously obtained corrected radio signals weighed by said further weighing factors, till a stop criterion has been satisfied is simply not taught or suggest by either Kao or Mesecher in combination or separately as recited in claim 1. Claim 11 recites limitations analogous to claim 1 and also are not taught or suggested in Kao or Mesecher. Claims 2-3 depend from claim 1 and recite further limitations in combination with the novel elements of claim 1. Claims 12 and 13 depend from claim 11 and recite further limitations in combination with the novel elements of claim 11. Therefore, the allowance of claims 1-3 and 11-13 is respectfully requested.

Prior Art Not Relied Upon

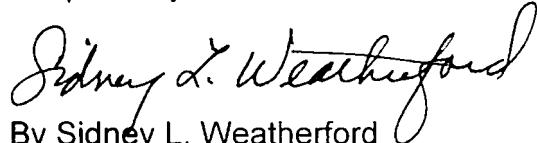
In paragraph 6 on page 8 of the Office Action, the Examiner stated that the prior art made of record and not relied upon is considered pertinent to the Applicant's disclosure.

CONCLUSION

In view of the foregoing remarks, the Applicant believes all of the claims currently pending in the Application to be in a condition for allowance. The Applicant, therefore, respectfully requests that the Examiner withdraw all rejections and issue a Notice of Allowance for all pending claims.

The Applicant requests a telephonic interview if the Examiner has any questions or requires any additional information that would further or expedite the prosecution of the Application.

Respectfully submitted,



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